

GIS and Tourism

Term Paper (Final)

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Introduction:

According to the literature the use of geographical location was used long back in our history before 35,000 years ago, on the walls of caves near Lascaux, France, Cro-Magnons hunters drew pictures of the animals and associated it with drawings track lines and tallies to map their migration routes. When we compare their way of animal hunting to modern technologies, these early records look similar to the two-element structure of modern geographic information systems, an image associated with attribute information.

In the field of medical treatments, the earliest use of the geographic method was in 1854 in which they depicted a cholera outbreak in London using points to represent the locations of individual cases. Their study of the distribution of cholera led to the source of the disease, a contaminated water pump within the heart of the outbreak.

The early 20th century saw the development of "photo lithography" where maps were separated into layers. Computer hardware development spurred by nuclear weapon research would lead to general purpose computer "mapping" applications by the early 1960s. The year 1964 saw the development of the world's first true operational GIS in Ottawa, Ontario by the federal Department of Energy, Mines, and Resources. Developed by Roger Tomlinson, it was called "Canadian Geographic Information Systems" (CGIS) and was used to store, analyze, and manipulate data collected for the Canada Land Inventory (CLI)—an initiative to determine the land capability for rural Canada by mapping information about soils, agriculture, recreation, wildlife, waterfowl, forestry, and land use at a scale of 1:250,000. A rating classification factor was also added to permit analysis.

CGIS was the world's first "system" and was an improvement over "mapping" applications as it provided capabilities for overlay, measurement, and digitizing/scanning.

It supported a national coordinate system that spanned the continent, coded lines as "arcs" having a true embedded topology, and it stored the attribute and location information in separate files. As a result of this, Tomlinson has become known as the "father of GIS."

CGIS lasted into the 1990s and built the largest digital land resource database in Canada. It was developed as a mainframe based system in support of federal and provincial resource planning and management. Its strength was continent-wide analysis of complex data sets. The CGIS was never available in a commercial form. Its initial development and success stimulated various commercial mapping applications being sold by vendors such as ESRI, MapInfo, Intergraph and CARIS to successfully incorporate many of the CGIS features, combining the first generation approach to separation of spatial and attribute information with a second generation approach to organizing attribute data into database structures.

The 1980s and 1990s industry growth were spurred on by the growing use of GIS on UNIX workstations and the personal computer. By the end of the 20th century, the rapid growth in various systems had been consolidated and standardized on relatively few platforms and users were beginning to export the concept of viewing GIS data over the Internet, requiring data format and transfer standards.

More recently, there is a growing flavor of free, open source GIS packages such as GRASS GIS and Quantum GIS which run on a range of operating systems and can be customized to perform specific tasks.

What are the GIS:

Is a system for creating, storing, analyzing and managing spatial data and associated attributes. In the strictest sense, it is a computer system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically-referenced information. In a more generic sense, GIS is a tool that allows users to create interactive queries (user created searches), analyze the spatial information, and edit data. In general GIS useful in tourism in which it consists of a wide variety of aspects including facilities, activities, services, and industries to deliver a travel experience.

Spatial data plays an important role in evaluating and planning these different aspects. GIS can be used to determine the best sites for a new tourist destination, also can be a valuable tool for investigating specific questions that pertain to tourism development including location, condition of the area, trends and changes, routing to and through the site, and patterns associated with resource use.

Now days GIS science underlying the applications and systems, taught as a degree program by several universities. Moreover, the GIS can be used in different field as am I going to discuss them in the following sections.

The importance of GIS :

When making decisions, planning, analyzing the effect of changes, looking for patterns, etc., we may look at maps, tables, charts, lists, graphs and reports, and sometimes it is rather difficult or nearly impossible to pull all these sources of information together and make sense out of them. Geographic information systems however, have the capability to handle several kinds of information that can be related to a location or area. For example, hotels and tourist destinations all have one thing in common – location. And since the

geographic position of any map feature is unique, it provides a complex link between the different data sets. The result is no longer a simple map but a complex multi-dimensional model of information. Using GIS therefore, it becomes possible to integrate tourism information, visualize complex scenarios, present powerful ideas and derive effective solutions otherwise not possible. Besides, geographic information systems are dynamic, allowing the user to 'enter' the map to explore, enquire and analyze geographic locations and the information linked to these locations. Questions like, Where is it, What is it, What if, What has changed since, How do they occur?

Are easily answered within the context of a tourism GIS. And these are the most likely questions a potential tourist and/or investor may seek answers for in order to plan and undertake a trip or to consider to make a potential investment decision.

Also, the capabilities of GIS have made it possible to answer spatial queries using intelligent maps with integrated images, text, tables, diagrams; and showing shortest paths, location of hotels, tourist sites, price quotations, and so forth.

Geographic information system technology can be used for scientific investigations, resource management, asset management, Environmental Impact Assessment, Urban planning, cartography, and route planning. For example, a GIS might allow emergency planners to easily calculate emergency response times in the event of a natural disaster, or a GIS might be used to find wetlands that need protection from pollution.

Resource management defines as a set of practices pertaining to maintaining natural systems integrity. Examples of this form of management are air resource management, soil conservation, forestry, wildlife management and water resource management. The broad term for this type of resource management is natural resource management (NRM).

An Environmental Impact Assessment (EIA) is an assessment of the likely human environmental health impact, risk to ecological health, and changes to nature's services

that a project may have. The purpose of the assessment is to ensure that decision-makers consider environmental impacts before deciding whether to proceed with new projects.

Urban, city, or town planning is the discipline of land use planning which explores several aspects of the built and social environments of municipalities and communities. Other professions deal in more detail with a smaller scale of development, namely architecture, landscape architecture and urban design. Regional planning deals with a still larger environment, at a less detailed level.

Cartography or mapmaking is the study and practice of making maps or globes. Maps have traditionally been made using pen and paper, but the advent and spread of computers has revolutionized cartography. Most commercial quality maps are now made with map making software that falls into one of three main types; CAD, GIS, and specialized map illustration software.

Maps function as visualization tools for spatial data. Spatial data is acquired from measurement and can be stored in a database, from which it can be extracted for a variety of purposes. Current trends in this field are moving away from analog methods of mapmaking and toward the creation of increasingly dynamic, interactive maps that can be manipulated digitally.

The cartographic process rests on the premise that the world is measurable and that we can make reliable representations or models of that reality. Mapmaking involves advanced skills and attitudes, particularly the use of symbols to represent certain geographic phenomena, as well as the ability to visualize the world in an abstract and scaled down form.

GIS and tourism:

As I mentioned in the above paragraphs the GIS system can be used and utilized for many and different fields, but my interest in this paper going to concentrate more about its usage in the field of tourism business and how this contribute to the successful of tourism business and to the city or country economic in general.

From my experience and from what I here from friends that ordinary smart and educated peoples or families whom use to travel a lot before the revelation of internet and satellite channels, before they plan to visit any country they read about it in some tourist or country information books and ask whoever they know visit that country about the attraction places, sightseeing, and market in that country or cities they planed to visit this year. They ask about the best places they visit and which one they enjoy the most. Also, interim of accommodation they question about the hotel services and whether it locate near the attraction and tourist places or not and what they recommend for them to have nice, well planed and affordable visit.

Now a days with the development and use of world wide web, people or whoever like to spend nice well planed vacation can utilized the enormous internet resources to get all the information they like to have for the country or city the plan to vist.currently most of the tourist direction or places all around the globe have their web site linked with all important information and one of the most important ones is the tourist information which include all the cite seeing,attraction,musiums,beaches, hotals..etc in which any visitor can plan his vacation to visit most or some of them. You can till that most of the well developed country or city web site such as www.orlando.info.com or www.france.com or even growing nations like “Lebanon Atlas” contain new pictures and updated information about their attraction and sightseeing in which you can visually see how they look like and read about different activities they perform during the whole year.



Figure (1): sightseeing and attraction location in GIS map.

With the development of geographical information system and software, tourist now can see and locate the sightseeing, attraction, and the hotel they plan to accommodate in the tourist map as points or polygon as show in the figure (1) or even they can map their route to specific location they like to see or explore using the GIS map as can be notice in the figure (2).



Figure(2): sightseeing and attraction location route in GIS map.

GIS/RS in tourist development:

Before remote sensing instrumentation and development that takes place recently which enable us to see the whole globe from our disk top with only having internet connection, we were able to only view the GIS maps of the tourist city or country with some linked picture showing the main roads, commercial places, urban cities, and some parks or sightseeing, but with highly advanced integrated GIS/RS application we can visit all cities and country all around the world from our personal computer. As I briefly mentioned above, GIS alone now a days not enough with the highly advanced informative world in which tourist and visitors ask for more and detailed information about the places they want or plan to visit. With the development and the integration of GIS with remote sensing application now we can view the whole globe and view in real time the main tourist places or attraction from the real time camera that installed in those places. This technology is widely used now days by satellite channels in which they give snapshot for some particular famous places from the main capitals or tourist cities. this technology in fact help tourist to see how the activity of particular city or country look like and weather it crowded, modernize, well arrange, safe, and worth to be visited. This type of inquiry or information which can be get from this real time prodcasting, always make people ask about those places and plan one year to visit them or think about doing so if they really like what being viewed, which all depend on the city tourist planer and advertiser who locate those cameras.

Self experience with GIS/RS application:

For my experience using the GIS application in general and the one integrated with remote sensing application such as Google earth, I feel completely comfortable with the integrated one even sometime its not giving a lot of information for my destination as this application don't cover all what you want for the city or country I plan to visit. what's make me like the Google earth as GIS/RS application is the way the system image the whole country in which you can feel that you visit city and its attraction places from your disk top.

From this software you can see all the country and cities with acceptable resolution like the one in figure (3). Also some advance packages you can view whatever webcam associated with the software in which you can view or have snapshot about that place in real time. In this software also you can make your route to different places you plan to visit or have a look into it. It can give the destination and time that you need to reach that place. also, it give the most important places and destination based on the viewer interest, in which he can turn on the information layer of main road, highway, big stores, hospitals, gardenses,..etc.

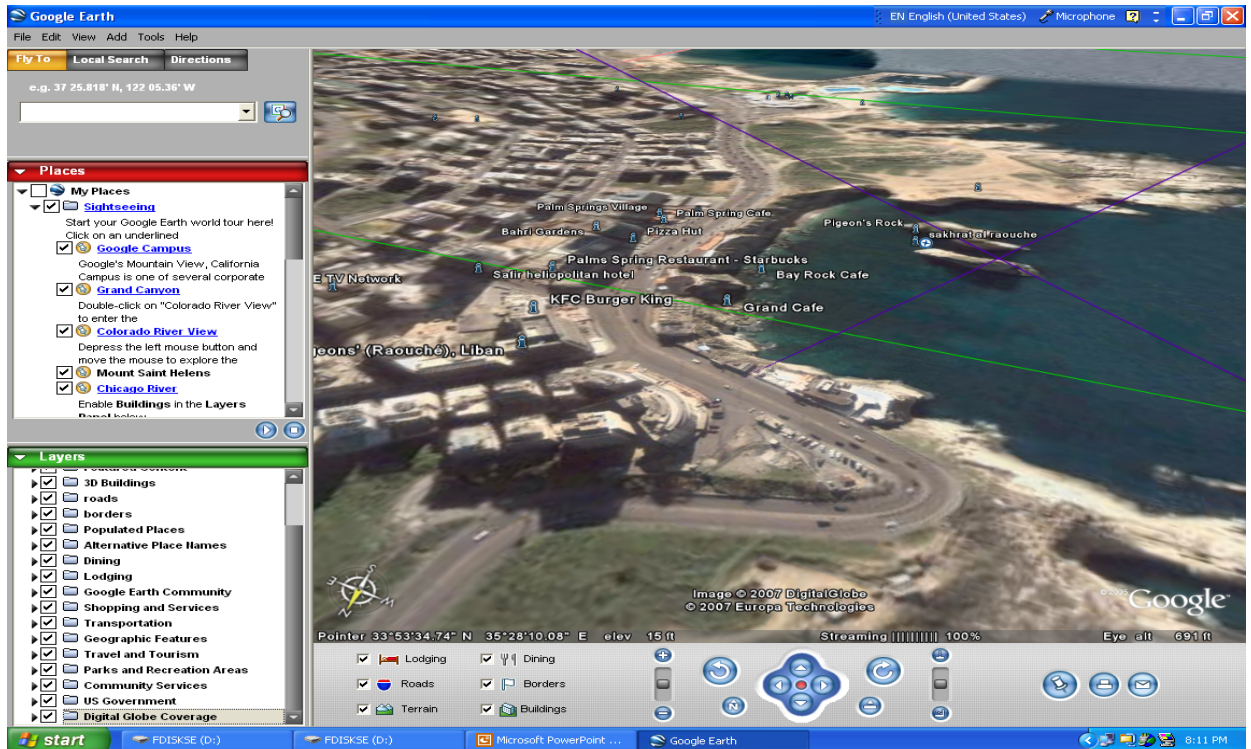


Figure (3): sightseeing and attraction location in Lebanon (Google Earth GIS application).

For my experience with this software, I really enjoy working and serving it not only for tourist purposes but see the old place that I already visit and remember some good times that I spent in that particular place. This software also very helpful when you need to visit new place especially if you need to visit it with your own car. The images in this software make you feel and experience the road, geographic terrain, and the land feature that you going to encounter especially if you travel from country to another. It will make it easy and more comfortable.

Conclusion:

The GIS applications are growing up very fast and contribute to development in different field and not limited to tourism industry. I think GIS/RS application really contribute and expand the tourism industry and make it more attractive and easy to be advertise using such application in which any one can utilize it for less amount of money to explore new location in the whole globe. For my point of view GIS application help me a lot to be familiars with the area in live in or uses to live in and the place that I would like to visit or spend my vacation. To tell you the truth, even on my free time I go to this application and explore country and cite in the whole world which I dream or think to visit one day. I would like to emphasis that GIS application really improve and contribute to tourism advertisement and development. RS and GIS Integrated application is the most powerful GIS application (especially 3D Google earth). The free internet version of Google Earth application really helps me and encourages me to hit the road and travel more 2000 km visiting different country. Also, in future am going to use the GIS application before and after visiting any place whether here in Saudi Arabia or any where else.



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